

Title (en)  
Membrane electrode assemblies.

Title (de)  
Membran-Elektrode-Anordnungen.

Title (fr)  
Assemblages électrode-membrane.

Publication  
**EP 0577291 A1 19940105 (EN)**

Application  
**EP 93304687 A 19930616**

Priority  
GB 9213124 A 19920620

Abstract (en)  
A porous electrode suitable for use in a membrane electrode assembly for solid polymer fuel cells comprises a highly dispersed precious metal catalyst on particulate carbon impregnated with proton conducting polymer, and, a further component comprising hydrophobic polymer and a dispersion of particulate carbon, the loading of precious metal being 0.01-1.0mg/cm<sup>2</sup> of geometric electrode area. Said electrode demonstrates high effective platinum surface area and power density output when fabricated into a membrane electrode assembly.

IPC 1-7  
**H01M 8/10**; **H01M 4/88**

IPC 8 full level  
**H01M 4/86** (2006.01); **H01M 4/88** (2006.01); **H01M 4/92** (2006.01); **H01M 8/10** (2006.01)

CPC (source: EP US)  
**H01M 4/8835** (2013.01 - EP US); **H01M 4/8839** (2013.01 - EP US); **H01M 4/8846** (2013.01 - EP US); **H01M 4/8882** (2013.01 - EP US); **H01M 4/8892** (2013.01 - EP US); **H01M 8/1004** (2013.01 - EP US); **Y02E 60/50** (2013.01 - EP); **Y02P 70/50** (2015.11 - EP US)

Citation (search report)  
• [X] EP 0483085 A2 19920429 - TANAKA PRECIOUS METAL IND [JP], et al  
• [YD] EP 0292431 A2 19881123 - ELTECH SYSTEMS CORP [US]  
• [Y] US 4816431 A 19890328 - FURUYA NAGAKAZU [JP], et al  
• [A] FR 2404312 A1 19790420 - ANVAR [FR]  
• [A] EP 0241432 A2 19871014 - TANAKA PRECIOUS METAL IND [JP], et al  
• [A] US 4804592 A 19890214 - VANDERBORGH NICHOLAS E [US], et al  
• [A] CHEMICAL ABSTRACTS, vol. 115, no. 22, 2 December 1991, Columbus, Ohio, US; abstract no. 236351j, SUZUKI, NABUKAZU 'Solid-electrolyte fuel cells'  
• [A] JOURNAL OF APPLIED ELECTROCHEMISTRY. vol. 19, 1989, LONDON GB pages 383 - 386 A. K. SHUKLA ET AL 'A Nafion-bound platinized carbon electrode for oxygen reduction in solid polymer electrolyte cells'

Cited by  
FR2788630A1; US7125620B2; US5882810A; EP0637851A1; US5474857A; AU712037B2; EP1523053A3; US6403245B1; AU774842B2; EP0869568A1; US6127059A; FR2810794A1; EP1347527A3; DE19602629A1; US5723173A; DE19602629C2; DE19812592A1; DE19812592B4; US5869416A; EP0945910A3; WO2013021145A1; US6946211B1; WO2013093449A2; US6309772B1; US7291419B2; US6312845B1; WO9919929A1; WO03103077A3; WO0201664A1; KR100437572B1; KR100573200B1; WO0042670A1; WO9515016A1; US6183668B1; US6428584B1; US6432571B1; US6613106B1; US6183898B1; WO9713287A3; WO9720358A1; WO9720359A1; WO0118894A3

Designated contracting state (EPC)  
AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL PT SE

DOCDB simple family (publication)  
**EP 0577291 A1 19940105**; **EP 0577291 B1 19980401**; AT E164705 T1 19980415; AU 4137293 A 19931223; AU 664620 B2 19951123; CA 2098800 A1 19931221; CA 2098800 C 20040113; DE 69317700 D1 19980507; DE 69317700 T2 19980820; DK 0577291 T3 19990201; ES 2114005 T3 19980516; GB 9213124 D0 19920805; JP 3211997 B2 20010925; JP H0652862 A 19940225; US 5501915 A 19960326

DOCDB simple family (application)  
**EP 93304687 A 19930616**; AT 93304687 T 19930616; AU 4137293 A 19930618; CA 2098800 A 19930618; DE 69317700 T 19930616; DK 93304687 T 19930616; ES 93304687 T 19930616; GB 9213124 A 19920620; JP 14756693 A 19930618; US 42946095 A 19950426